

Remarks/Arguments

Applicant would like to thank Examiner Cheng for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action. By way of the present amendment, claims 7, 8, 12, 14 and 16 have been amended. Also, four new claims 19-22 have been added. Accordingly, claims 7-8, 12 and 14-22 stand pending in this application. Applicants respectfully request reconsideration and allowance of the application.

Applicants respectfully traverse the objection of claims 7 and 12. However, in an effort to expedite prosecution of the application, the preamble of claim 7 has been amended as suggested by the Office action. Moreover, in an effort to address the concerns set forth in the Office action, claim 12 has been amended to replace “the effusion viscosity” with –the viscosity of the middle ear effusion–. Applicants therefore respectfully request withdrawal of the corresponding objection to claims 7 and 12.

Claims 7, 8, 12, 14, and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Brainard, II (U.S. 6,048,320) in view of Takeuchi (*Viscoelastic Properties Of Middle Ear Effusions From Pediatric Otitis Media With Effusion And Their Relation To Gross Appearance*) and Greenwood (US 2006/0172734 A1). Applicant respectfully traverse this rejection for at least the following reasons. For example, neither Brainard, Takeuchi nor Greenwood, alone or in combination, discloses each and every limitation of the claims. Current independent claims 7, 12, 14, and 16 are copied below (emphasis added).

Claim 7 of the present application sets forth (emphasis added):

A method for testing for otitis media, comprising: positioning an ultrasound probe at a location spaced away from a tympanic membrane of a human patient, using the ultrasound probe to detect the presence and measure the viscosity of middle ear effusion in the human patient while the ultrasound probe is positioned at the location spaced away from the tympanic membrane; and comparing the measured viscosity of the middle ear effusion in the human patient with at least three predetermined values for effusion viscosity, wherein such comparison provides

information regarding the likelihood of presence of bacterial infection in the middle ear effusion in the human patient.

Claim 12 of the present application sets forth (emphasis added):

A method for determining if a human patient is a candidate for receiving antibiotic treatment, wherein the presence of middle ear effusion in the patient is detected by an ultrasound probe that is positioned at a location spaced away from a tympanic membrane of the human patient and the viscosity of the middle ear effusion is determined and compared with at least one predetermined fluid viscosity value.

Claim 14 of the present application sets forth (emphasis added):

An apparatus for determining ear fluid viscosity, the apparatus including:
a plurality of transducers, each adapted to transceive an ultrasonic signal to interact with a fluid-containing portion of the ear; and
means for using pulse echo amplitudes to determine whether the fluid in the ear is serous, purulent or mucoid while the plurality of transducers are positioned at a location spaced away from a tympanic membrane.

Claim 16 of the present application sets forth (emphasis added):

A method of determining ear fluid viscosity, the method including:
positioning a plurality of transducers at a location spaced away from a tympanic membrane.
operating a plurality of transducers while the plurality of transducers are positioned at the location spaced away from the tympanic membrane such that

each transducer transceives an ultrasonic signal that interacts with a portion of an ear that contains fluid; and
using pulse echo amplitudes to determine whether the fluid in the ear is serous, purulent or mucoid.

With respect to claim 7, for example, neither Brainard, Takeuchi nor Greenwood, alone or in combination, discloses positioning an ultrasound probe at a location spaced away from a tympanic membrane of a human patient and using the ultrasound probe to detect the presence and measure the viscosity of middle ear effusion in the human patient while the ultrasound probe is positioned at the location spaced away from the tympanic membrane. Likewise, claim 12 discloses a method for determining if a human patient is a candidate for receiving antibiotic treatment wherein the presence of middle ear effusion in the patient is detected by an ultrasound probe that is positioned at a location spaced away from a tympanic membrane of the human patient.

It is noted that Greenwood teaches the use of an ultrasound transducer pressed against a membrane using pulse echo amplitudes to determine the viscosity of the fluid. However, neither Greenwood, Brainard nor Takeuchi disclose using an ultrasound probe while the ultrasound probe is positioned at a location spaced away from the tympanic membrane as required by claims 7 and 12. In fact, Greenwood only suggests locating an ultrasound transducer such that it is pressed against the membrane and therefore teaches away from using an ultrasound probe while the probe is located at a position spaced away from the tympanic membrane as required by claims 7 and 12. Accordingly, applicant respectfully request withdrawal of the corresponding rejection of claims 7 and 12.

Applicant further requests withdrawal of the rejection of claim 8, for example, as depending from claim 7 that is believed to be in condition for allowance as set forth above.

With respect to claim 14, for example, neither Brainard, Takeuchi nor Greenwood, alone or in combination, disclose an apparatus for determining ear fluid that includes means for using pulse echo amplitudes to determine whether the fluid in the ear is serous, purulent or mucoid while the plurality of transducers are positioned at a location spaced away from a tympanic membrane. As set forth above, Greenwood teaches the exact opposite, i.e., the use of an

ultrasound transducer pressed against a membrane using pulse echo amplitudes to determine the viscosity of the fluid. Accordingly, at least for this reason, applicants respectfully request withdrawal of the corresponding rejection of claim 14.

With respect to claim 16, for example, neither Brainard, Takeuchi nor Greenwood, alone or in combination, disclose a method of determining ear fluid viscosity including operating a plurality of transducers while the plurality of transducers are positioned at the location spaced away from the tympanic membrane such that each transducer transceives an ultrasonic signal that interacts with a portion of an ear that contains fluid. Indeed, as set forth above, Greenwood teaches the use of an ultrasound transducer pressed against a membrane using pulse echo amplitudes to determine the viscosity of the fluid. Accordingly, at least for this reason, applicants respectfully request withdrawal of the corresponding rejection of claim 16.

Claims 15, 17 and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Brainard, Takeuchi, Greenwood and further in view of U.S. 4,281,550 to Erikson. Applicants respectfully traverse this rejection for at least the following reasons. Claim 15 depends from claim 14 and claims 17 and 18 depend from claim 16. Claims 14 and 16 are believed to be in condition for allowance at least for the reasons set forth above. Moreover, Erikson fails to meet the deficiencies of the Brainard, Takeuchi, Greenwood combination. Therefore, at least for this reason, applicants request withdrawal of the corresponding rejection of claims 15, 17 and 18.

New claims 19-22 have been added to provide additional claim scope. Claims 19-22 are believed to be in condition for allowance, for example, as depending from one of claims 7, 12, 14 and 16 that are believed to be in condition for allowance at least for the reasons set forth above.

Accordingly, as set forth above, applicants believe that claims 7, 8, 12 and 14-22 are in condition for allowance. Accordingly, applicants respectfully request notice of allowance of the application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. BIM-34968US2.

Respectfully submitted,
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